FIG. 1

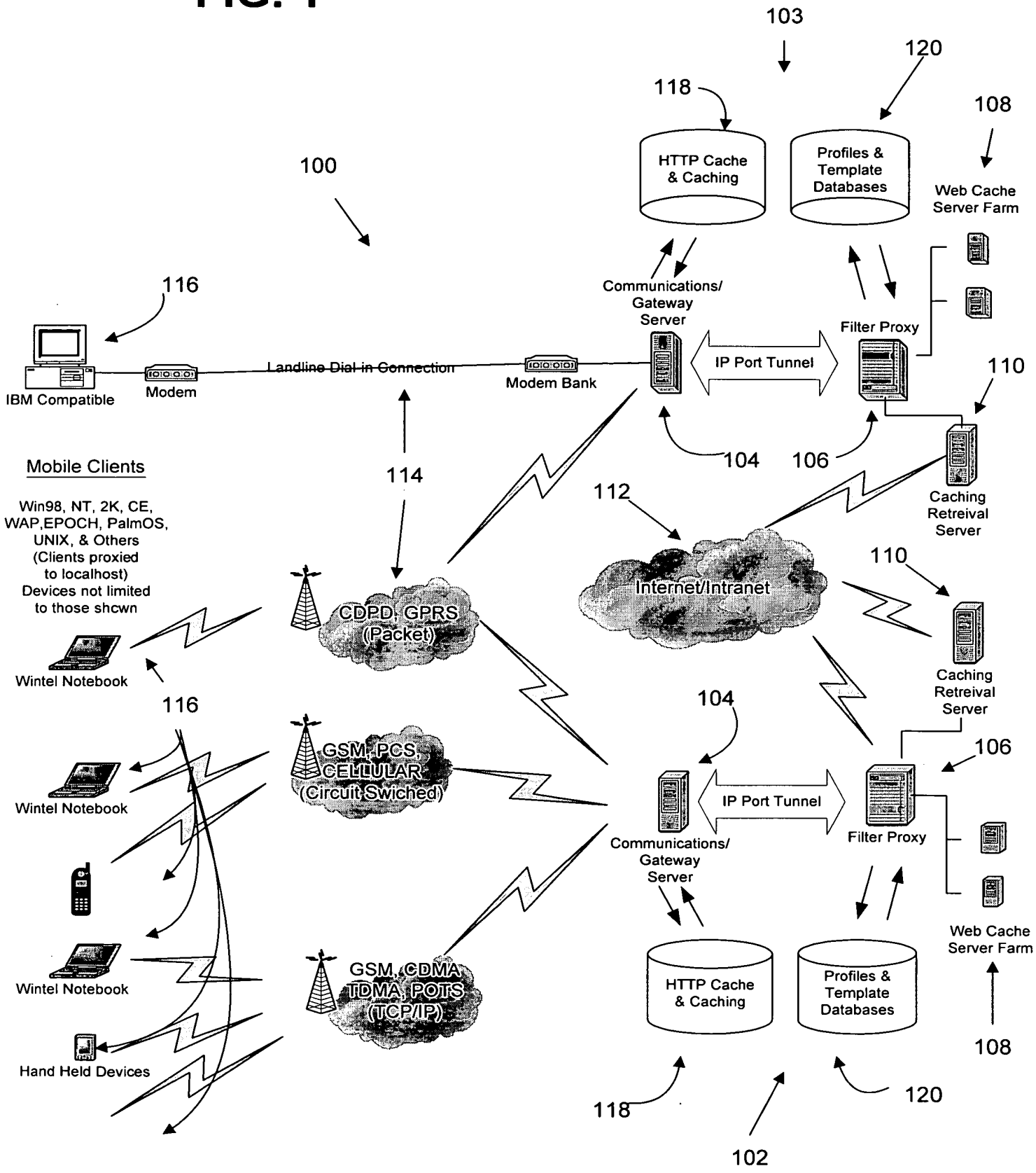

103
120
118
108
100
HTTP Cache & Caching
Profiles & Template Databases
Web Cache Server Farm
116
Communications/ Gateway Server
Filter Proxy
IBM Compatible
Modem
Landline Dial-in Connection
Modem Bank
IP Port Tunnel
110
104
106
114
Caching Retreival Server
Mobile Clients
112
Win98, NT, 2K, CE, WAP,EPOCH, PalmOS, UNIX, & Others (Clients proxied to localhost) Devices not limited to those shcwn
Internet/Intranet
110
CDPD, GPRS (Packet)
Caching Retreival Server
Wintel Notebook
116
104
GSM, PCS, CELLULAR (Circuit Swiched)
106
Wintel Notebook
IP Port Tunnel
Communications/ Gateway Server
Filter Proxy
Wintel Notebook
Web Cache Server Farm
GSM, CDMA TDMA, POTS (TCP/IP)
HTTP Cache & Caching
Profiles & Template Databases
Hand Held Devices
108
118
120
102

FIG. 2

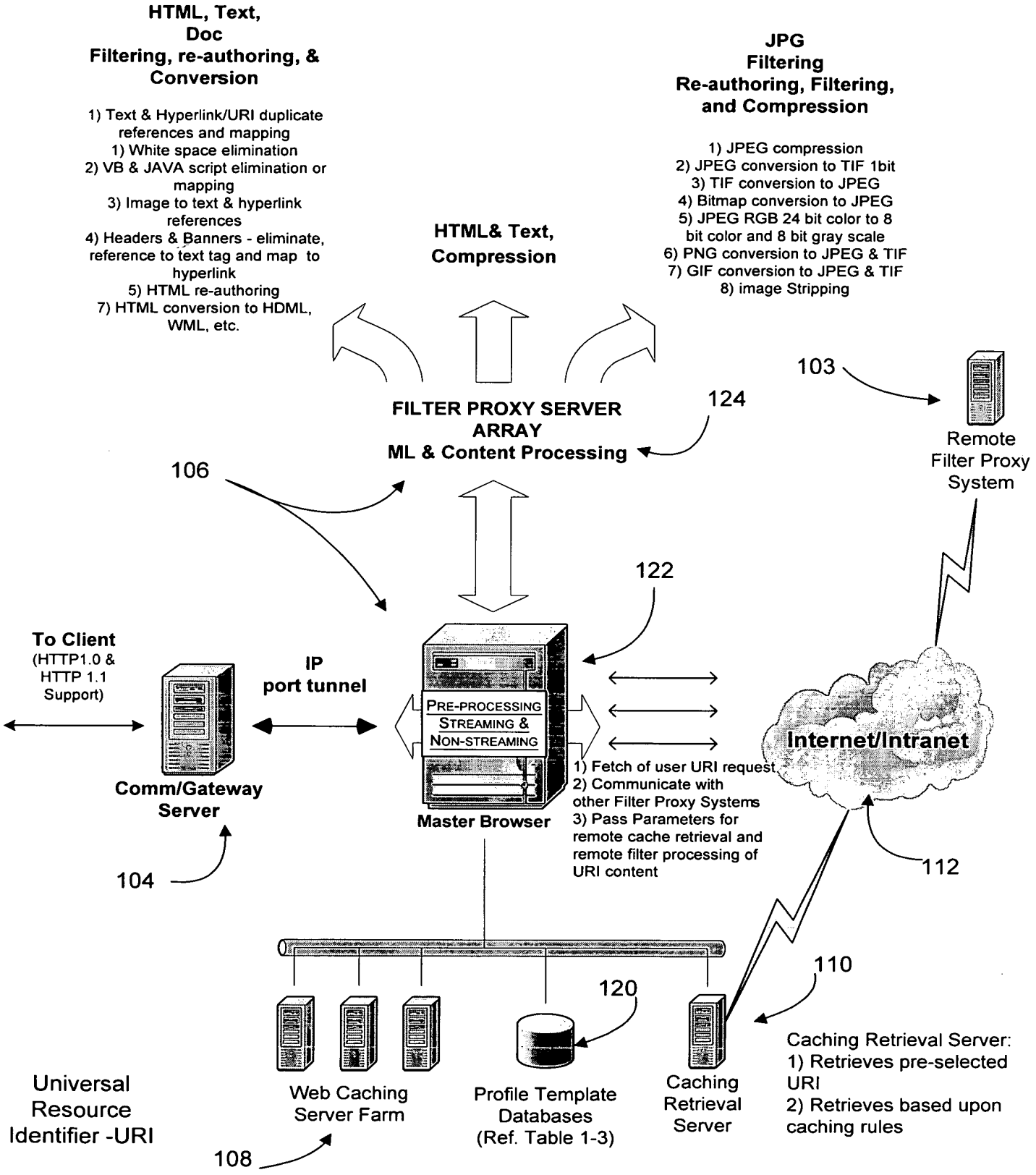

HTML, Text,
Doc
Filtering, re-authoring, &
Conversion
1) Text & Hyperlink/URI duplicate references and mapping
1) White space elimination
2) VB & JAVA script elimination or mapping
3) Image to text & hyperlink references
4) Headers & Banners - eliminate, reference to text tag and map to hyperlink
5) HTML re-authoring
7) HTML conversion to HDML, WML, etc.
HTML& Text,
Compression
JPG
Filtering
Re-authoring, Filtering,
and Compression
1) JPEG compression
2) JPEG conversion to TIF 1bit
3) TIF conversion to JPEG
4) Bitmap conversion to JPEG
5) JPEG RGB 24 bit color to 8 bit color and 8 bit gray scale
6) PNG conversion to JPEG & TIF
7) GIF conversion to JPEG & TIF
8) image Stripping
FILTER PROXY SERVER ARRAY
ML & Content Processing
124
103
Remote Filter Proxy System
106
122
To Client
(HTTP1.0 & HTTP 1.1 Support)
IP port tunnel
PRE-PROCESSING
STREAMING &
NON-STREAMING
Internet/Intranet
Comm/Gateway Server
Master Browser
1) Fetch of user URI request
2) Communicate with other Filter Proxy Systems
3) Pass Parameters for remote cache retrieval and remote filter processing of URI content
104
112
110
120
Caching Retrieval Server:
1) Retrieves pre-selected URI
2) Retrieves based upon caching rules
Universal Resource Identifier -URI
Web Caching Server Farm
Profile Template Databases
(Ref. Table 1-3)
Caching Retrieval Server
108

FIG. 3

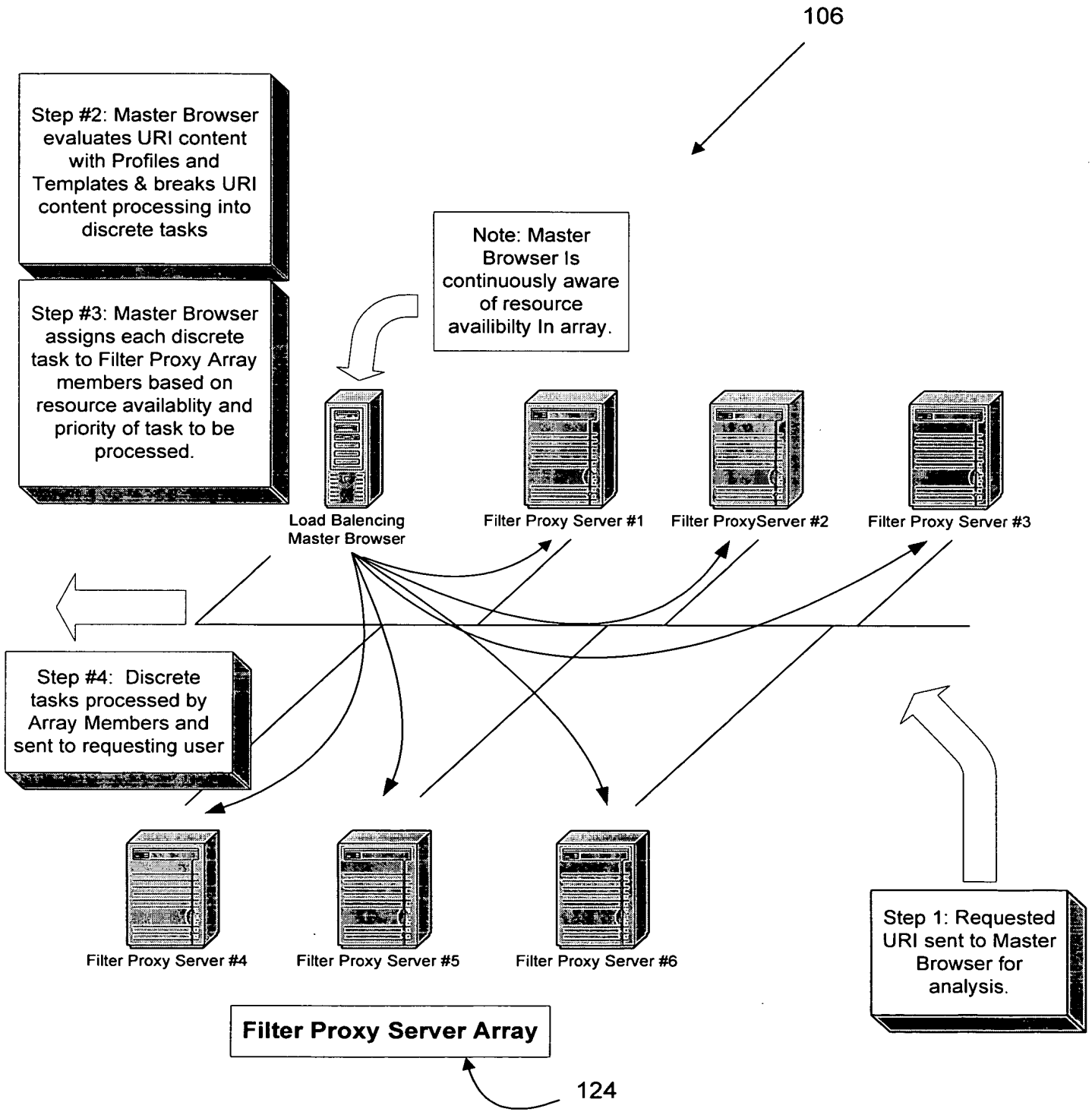

106
Step #2: Master Browser evaluates URI content with Profiles and Templates & breaks URI content processing into discrete tasks
Step #3: Master Browser assigns each discrete task to Filter Proxy Array members based on resource availablity and priority of task to be processed.
Note: Master Browser Is continuously aware of resource availibilty In array.
Load Balencing Master Browser
Filter Proxy Server #1
Filter ProxyServer #2
Filter Proxy Server #3
Step #4: Discrete tasks processed by Array Members and sent to requesting user
Filter Proxy Server #4
Filter Proxy Server #5
Filter Proxy Server #6
Step 1: Requested URI sent to Master Browser for analysis.
Filter Proxy Server Array
124

FIG. 4

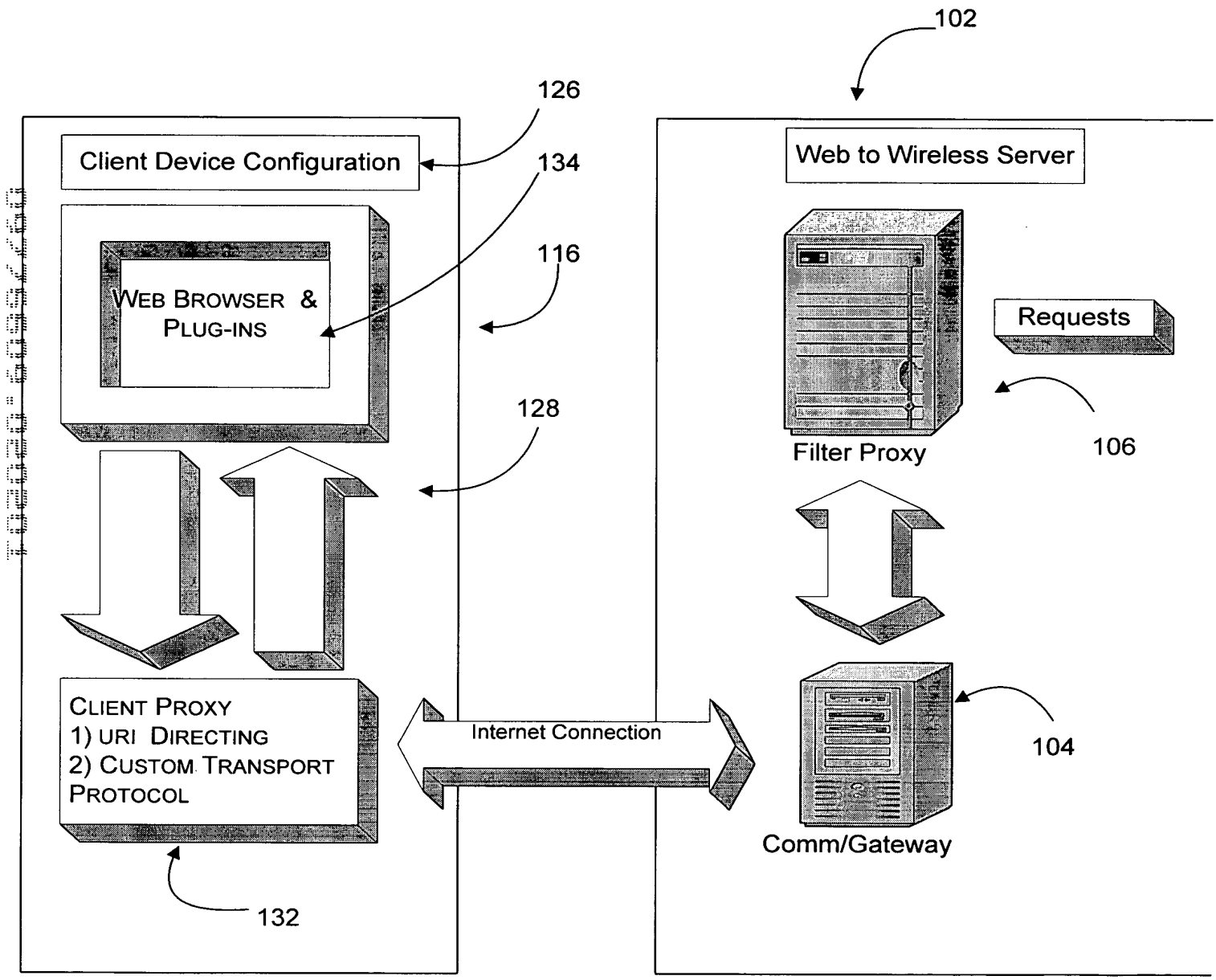

102
126
Client Device Configuration
134
116
WEB BROWSER & PLUG-INS
128
CLIENT PROXY
1) URI DIRECTING
2) CUSTOM TRANSPORT PROTOCOL
132
Internet Connection
Web to Wireless Server
Filter Proxy
Requests
106
104
Comm/Gateway

FIG. 5

DVC Profile	
PK	**Dvc Name**
	Hardware Profile# **Operating System Profile#** **Browser Profile#** **Protocol Profile#** **Image Profile#** **Text Profile#** **Vieo Profile#**

Hardware Profile	
PK	**Hardware Profile#**
	Available Mem Size Modem - Protocol Processor Video Processor Screen Size Screen Resolution Total Lines Characters/line Key Pad Function

Operating Sytem Profile	
PK	**Operating System Profile#**
	OS Name Language Mask Compression Security Mask Plug-in capable

Browser Profile	
PK	**Browser Profile#**
	Browser Name Mark-up Language Local/Remote Scripting Applet capable BrowserVersion

DVC Image Profile	
PK	**Image Profile#**
	All standards No image Color 24 bit Color 16 bit Color 8 bit Gray Scale 8 bit BW1 bit JGEG TIF Bitmap Special Image Profile#

Text Profile	
PK	**Text Profile#**
	HTML Standards Font Specific Min Font Size Max Font Size

Video Profile	
PK	**Video Profile#**
	Format Data Type Extension Special Plug-in

Special Image Profile	
PK	**Special Image Profile#**
	Plug-in Name Extension Type

FIG. 6

HTML Template	
PK PK	**URI** **Device Profile#**
	Max Image Pixel Horizontal Image Position Text Position Headers Hot Points mapping Script Mapping Delete Duplicate URI and Text Ref

HTML Template Key

1) Max Image Horizontal Pixels Size = 240
2) Image Position = Rt Allign/ Center/Lf Allign/ No Change
3) Text Position = Lf Allign+ Wrap/ (Rt+Lf/2) Allign on Margin/Rt Allign+Wrap/NoChange
4) Text Max Characters = DVC Profile(Characters/line);
5) Headers = Strip & keep Text/ Strip all
6) Hot Points = Map to text & Emulate / No Change
7) Delete Duplicate URI references & Text

User Profile	
PK PK	**User ID** **Device IP Code**
	Device Profile# No Change Text Only Remove Banners & Headers Compress HTML & Text Text Secuirty JPEG Max compress JPEG to Thmbnail GIF/PNG to JPEG JPEG to Gray Scale, JPEG to 1 bit B/W

User URI List	
PK	**Device IP Code**
	URI ML Template

FIG. 7

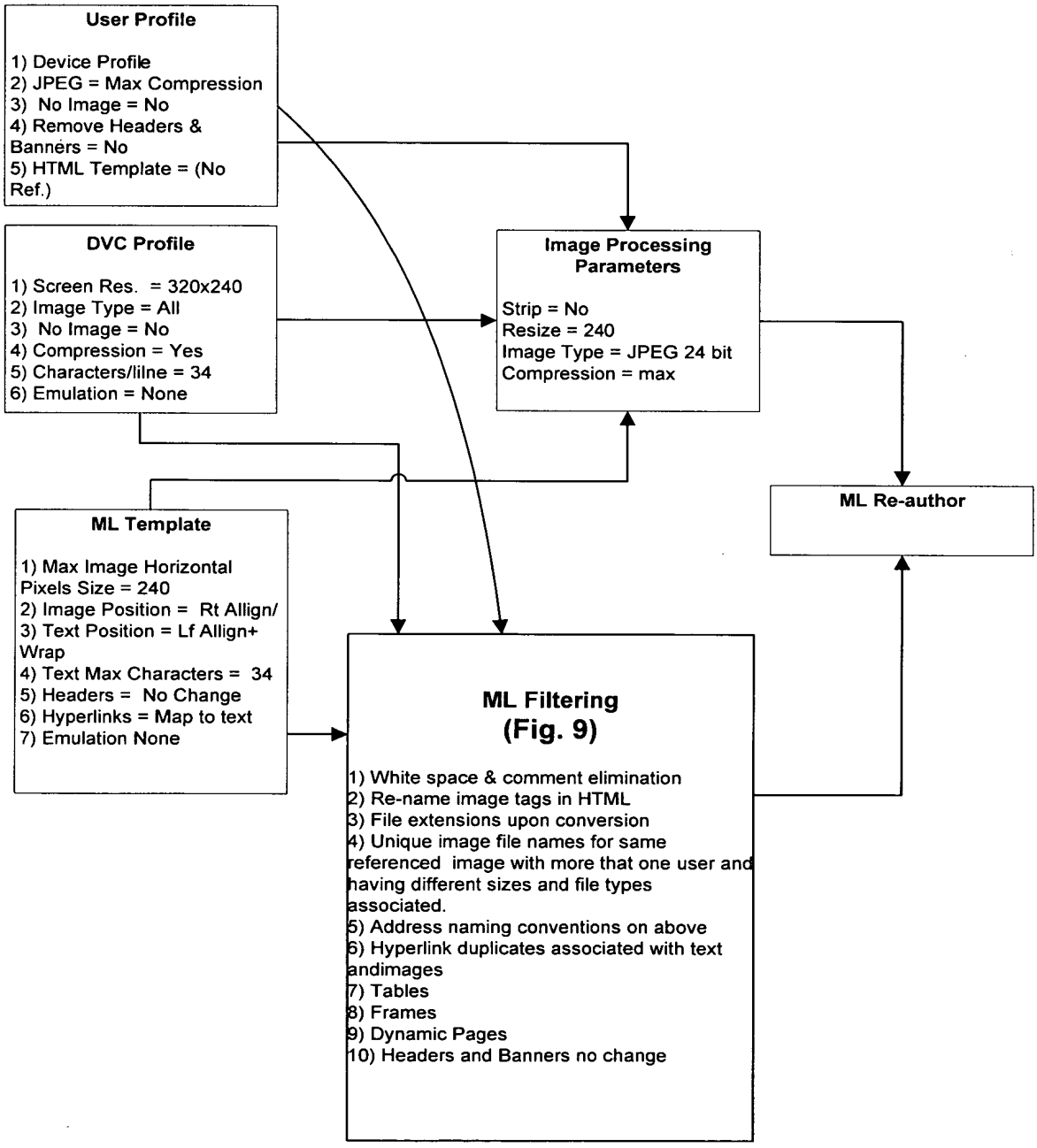

User Profile
1) Device Profile
2) JPEG = Max Compression
3) No Image = No
4) Remove Headers & Banners = No
5) HTML Template = (No Ref.)
DVC Profile
1) Screen Res. = 320x240
2) Image Type = All
3) No Image = No
4) Compression = Yes
5) Characters/lilne = 34
6) Emulation = None
Image Processing Parameters
Strip = No
Resize = 240
Image Type = JPEG 24 bit
Compression = max
ML Re-author
ML Template
1) Max Image Horizontal Pixels Size = 240
2) Image Position = Rt Allign/
3) Text Position = Lf Allign+ Wrap
4) Text Max Characters = 34
5) Headers = No Change
6) Hyperlinks = Map to text
7) Emulation None
ML Filtering (Fig. 9)
1) White space & comment elimination
2) Re-name image tags in HTML
3) File extensions upon conversion
4) Unique image file names for same referenced image with more that one user and having different sizes and file types associated.
5) Address naming conventions on above
6) Hyperlink duplicates associated with text andimages
7) Tables
8) Frames
9) Dynamic Pages
10) Headers and Banners no change

FIG. 8

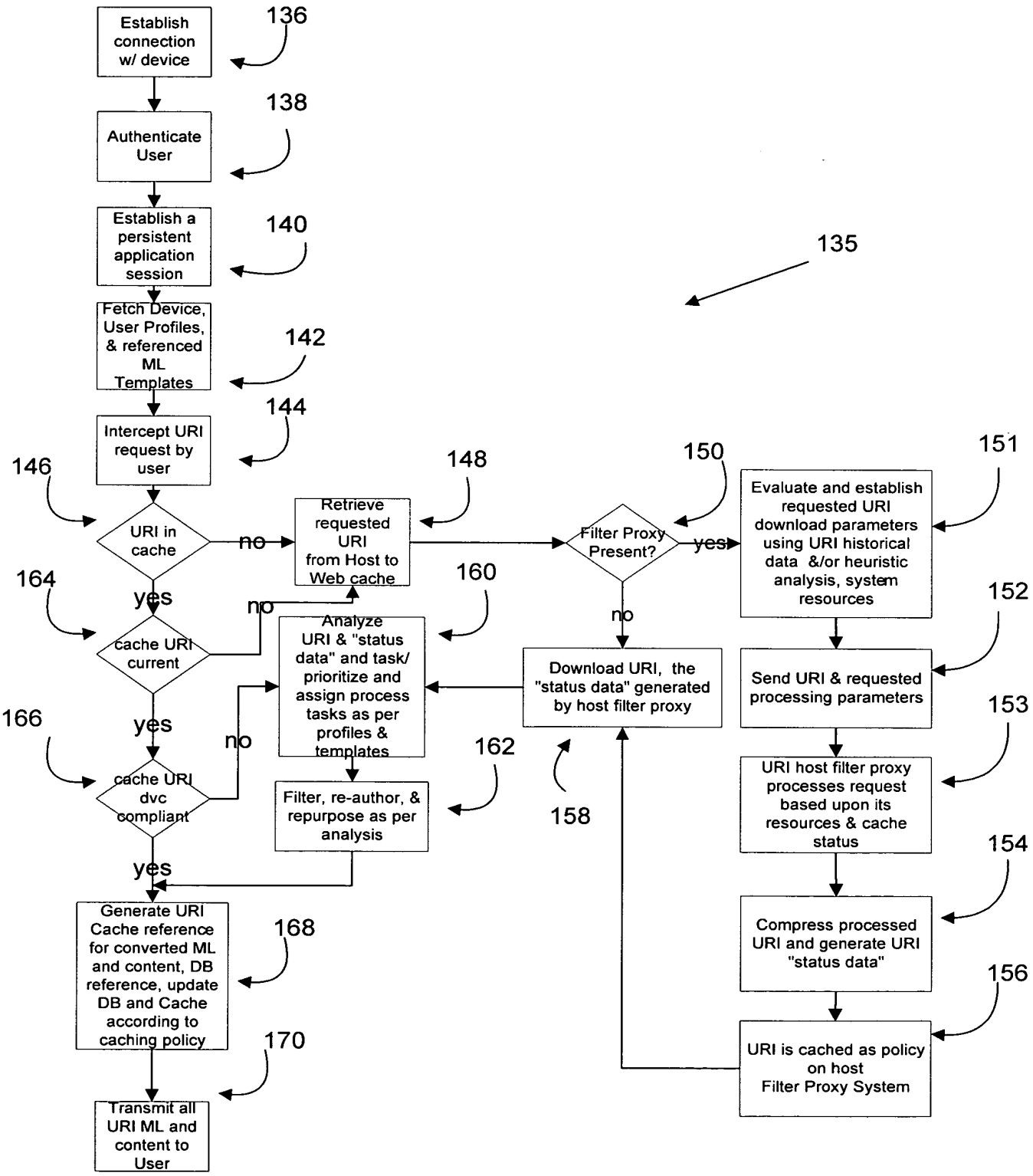

Establish connection w/ device
136
Authenticate User
138
Establish a persistent application session
140
135
Fetch Device, User Profiles, & referenced ML Templates
142
Intercept URI request by user
144
146
URI in cache
no
Retrieve requested URI from Host to Web cache
148
150
Filter Proxy Present?
yes
Evaluate and establish requested URI download parameters using URI historical data &/or heuristic analysis, system resources
151
164
yes
cache URI current
no
160
Analyze URI & "status data" and task/ prioritize and assign process tasks as per profiles & templates
no
Download URI, the "status data" generated by host filter proxy
Send URI & requested processing parameters
152
166
yes
cache URI dvc compliant
no
162
Filter, re-author, & repurpose as per analysis
158
URI host filter proxy processes request based upon its resources & cache status
153
yes
Generate URI Cache reference for converted ML and content, DB reference, update DB and Cache according to caching policy
168
Compress processed URI and generate URI "status data"
154
156
URI is cached as policy on host Filter Proxy System
170
Transmit all URI ML and content to User

FIG. 9

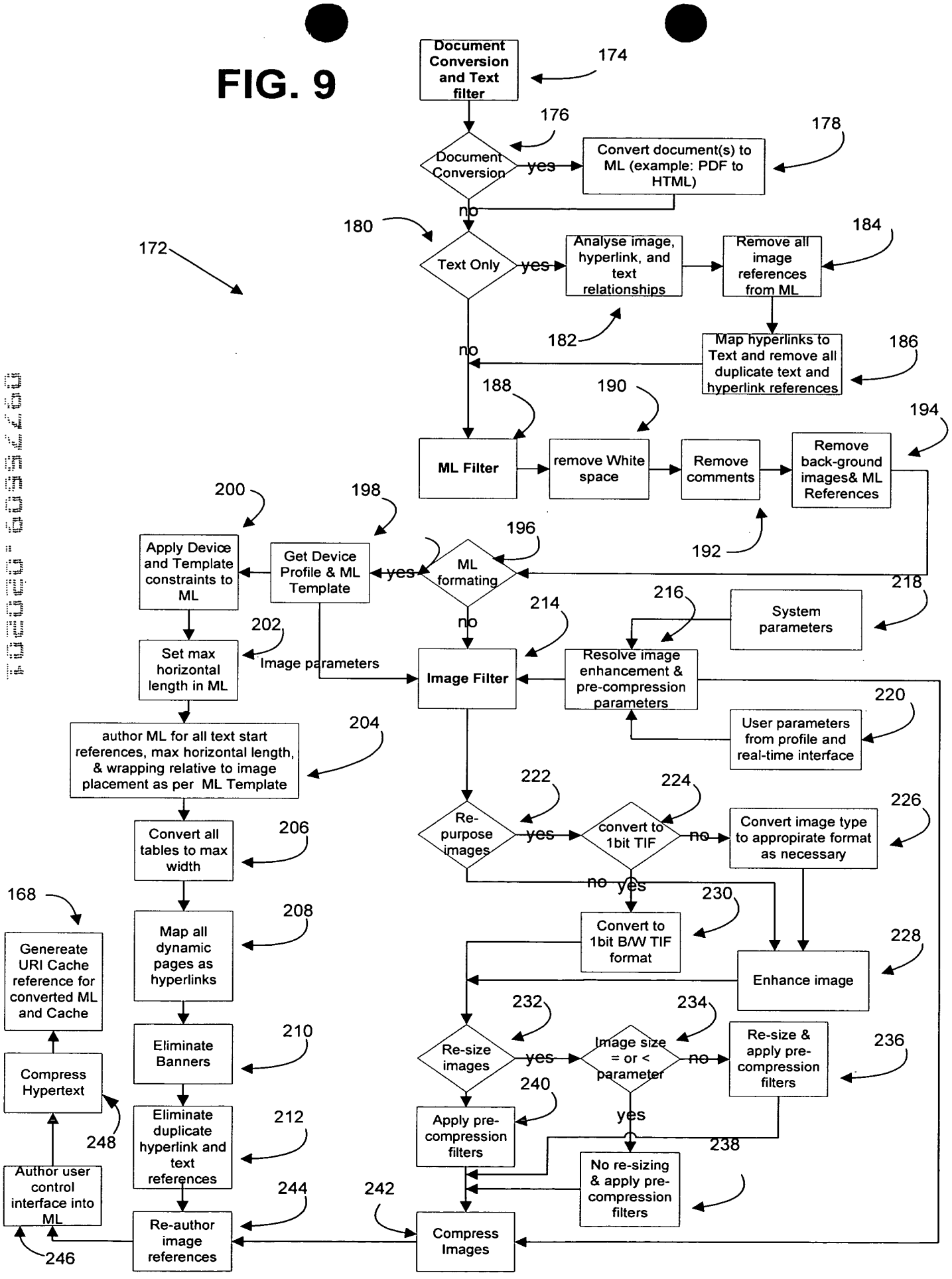
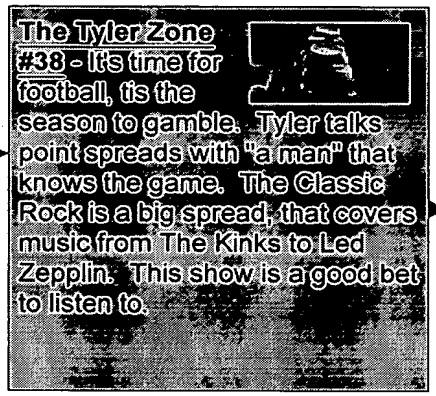

Document Conversion and Text filter
174
176
Document Conversion
yes
Convert document(s) to ML (example: PDF to HTML)
178
no
180
172
Text Only
yes
Analyse image, hyperlink, and text relationships
Remove all image references from ML
184
182
Map hyperlinks to Text and remove all duplicate text and hyperlink references
186
no
188
190
ML Filter
remove White space
Remove comments
Remove back-ground images& ML References
194
192
200
198
196
Apply Device and Template constraints to ML
Get Device Profile & ML Template
yes
ML formating
no
218
216
System parameters
214
202
Set max horizontal length in ML
Image parameters
Image Filter
Resolve image enhancement & pre-compression parameters
220
User parameters from profile and real-time interface
204
author ML for all text start references, max horizontal length, & wrapping relative to image placement as per ML Template
222
224
226
Re-purpose images
yes
convert to 1bit TIF
no
Convert image type to appropirate format as necessary
206
Convert all tables to max width
no
yes
230
168
208
Convert to 1bit B/W TIF format
228
Genereate URI Cache reference for converted ML and Cache
Map all dynamic pages as hyperlinks
Enhance image
232
234
Re-size images
yes
Image size = or < parameter
no
Re-size & apply pre-compression filters
236
210
Eliminate Banners
Compress Hypertext
240
Apply pre-compression filters
yes
248
212
Eliminate duplicate hyperlink and text references
238
No re-sizing & apply pre-compression filters
Author user control interface into ML
244
242
Re-author image references
Compress Images
246

FIG. 10

Portion of HTML Executed & Displayed on Standard Computer System

The Tyler Zone #38 - It's time for football, tis the season to gamble. Tyler talks point spreads with "a man" that knows the game. The Classic Rock is a big spread, that covers music from The Kinks to Led Zepplin. This show is a good bet to listen to.

Filtered and re-authored HTML & image converted to gray scale positioned on left top. Duplicate hyperlink eliminated for PDA. Text bound to 34 characters with word wrap applied and device font applied to text. Device having 240x320 pixel screen and gray scale display capability.



Illustrative of a single piece of content that includes text, hyperlinks, and an image that are extracted from original HTML and the rendered results of the HTML being re-authored and the image re-purposed to conform to screen and device parameters defined in DVC & user Profile. Duplicate hyperlinks to the same URI represented as underlined text are reduced to one. Fig. 7 is illustrative of the parameters of the profiles and template and their relationships

170

162

Filter & Re-author the HTML and content and **convert** to apporpriate ML using Template as defined by analysis using the Profiles & template

160

Analysis
Analyze HTML based upon Device, User Profiles and Template to :
a) determine re-authoring and conversion of HTML to proper ML for presentation of content on device
b) task the processing to the filter proxy array

168

HTML

```
<IMG ID="Picture1" HEIGHT=60 WIDTH=80 SRC="./
imgyhyhyhyhyh.jpg" VSPACE=0 HSPACE=2 ALIGN="LEFT"
BORDER=0><A HREF="http://www.my2clicks.com/rams/
tz38.ram"><B>The Tyler Zone #38</B></A> - It's time for football, tis
the season to gamble.&amp;nbsp; Tyler talks point spreads with &amp;quot;a
man&amp;quot; that knows the game.&amp;nbsp; The Classic Rock is a big
spread, that covers music from The Kinks to Led Zepplin.&amp;nbsp; <A
HREF="http://www.my2clicks.com/rams/tz38.ram">This show is a good
bet to listen to.</A>
```

FIG. 11
(Prior Art)

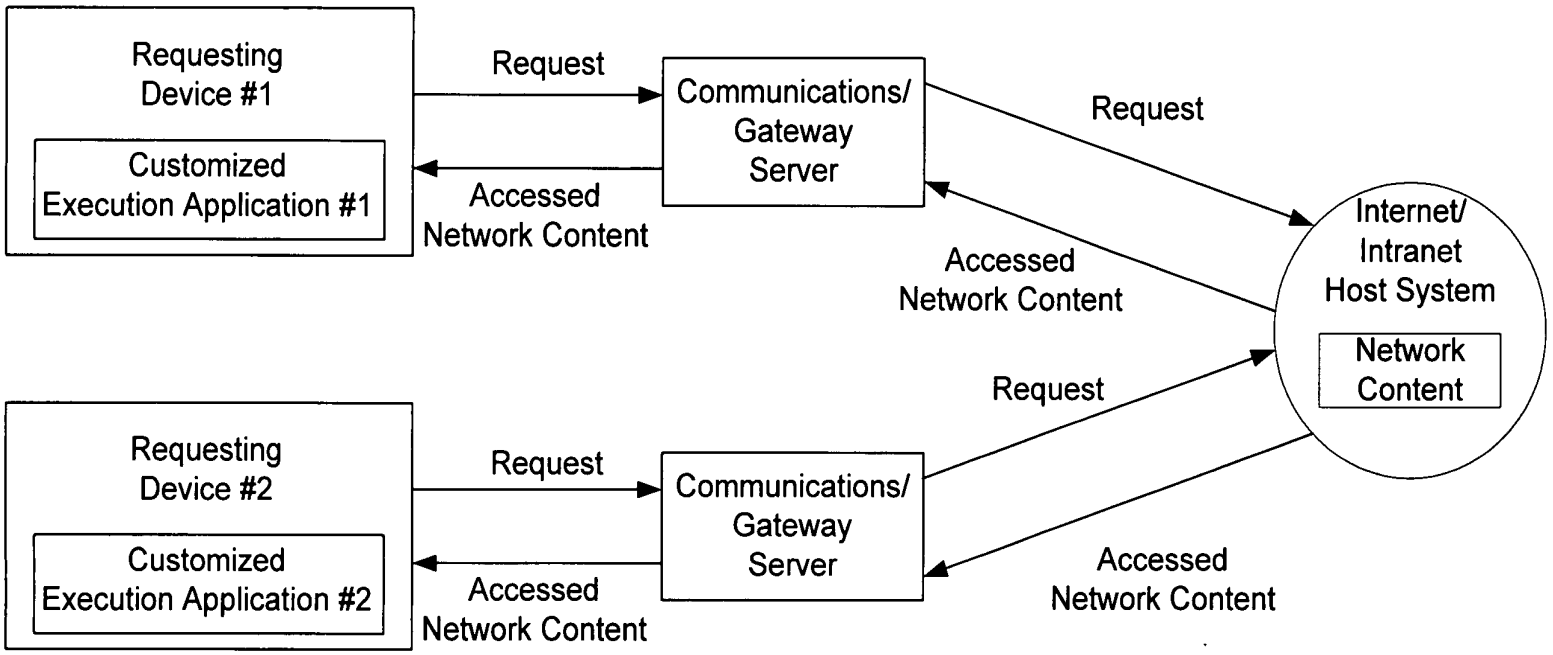


FIG. 12A

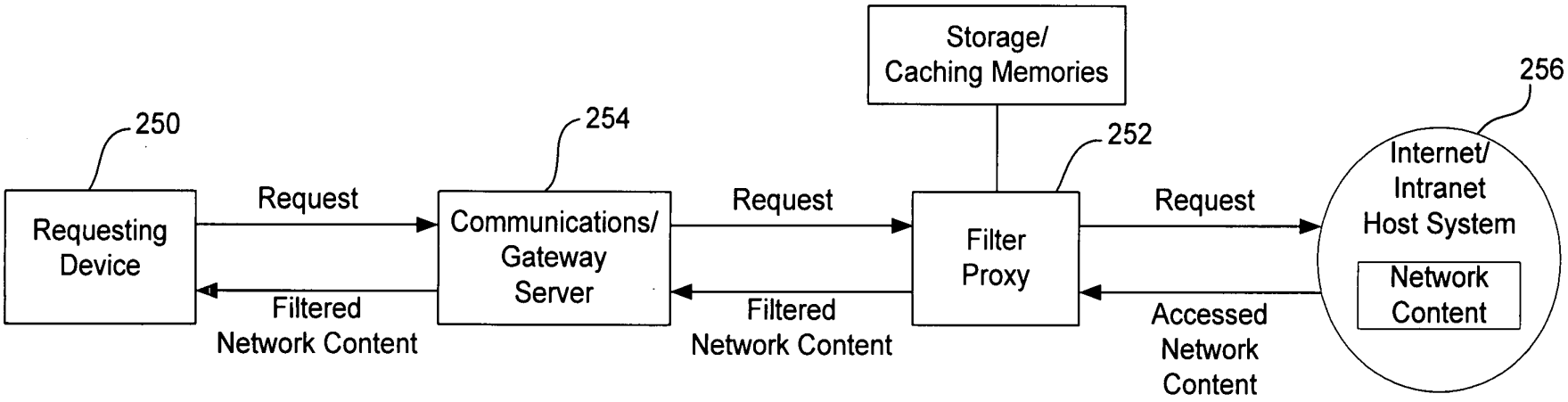
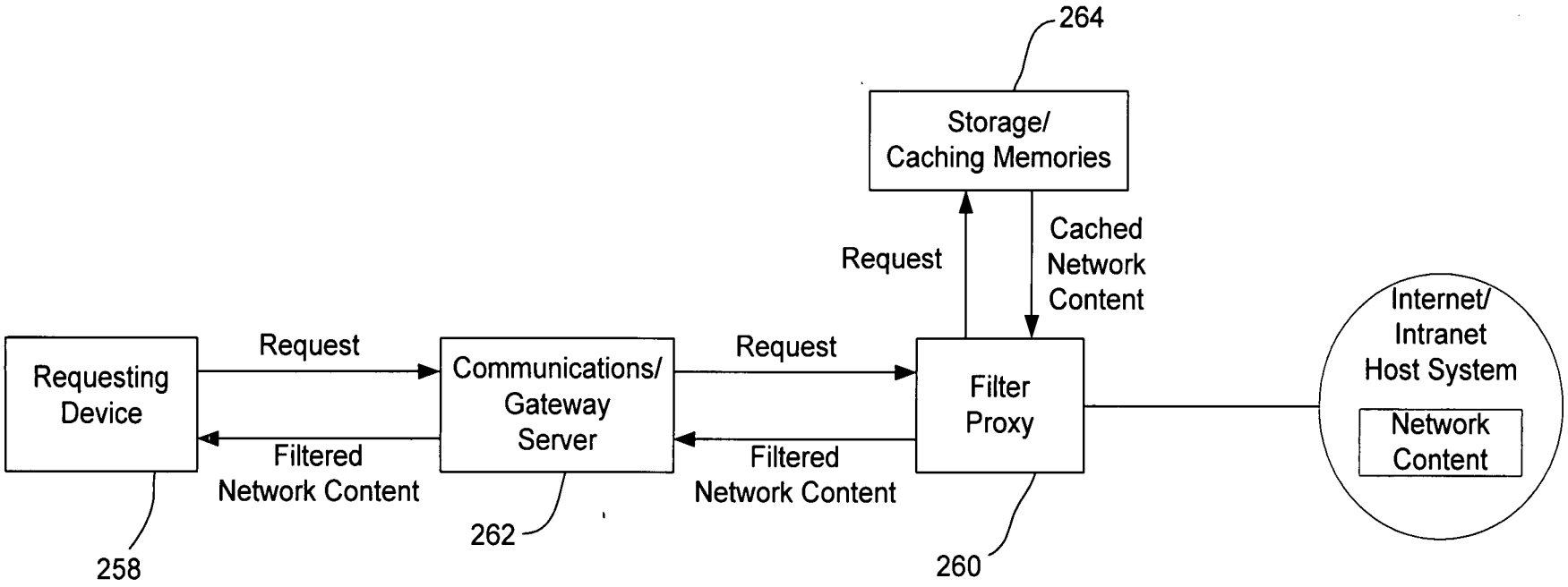

Storage/
Caching Memories
250
254
252
256
Requesting
Device
Request
Communications/
Gateway
Server
Request
Filter
Proxy
Request
Internet/
Intranet
Host System
Network
Content
Filtered
Network Content
Filtered
Network Content
Accessed
Network
Content

FIG. 12B


264
Storage/
Caching Memories
Request
Cached
Network
Content
Internet/
Intranet
Host System
Network
Content
Requesting
Device
Request
Filtered
Network Content
Communications/
Gateway
Server
Request
Filtered
Network Content
Filter
Proxy
258
262
260

FP2020-0099260

FIG. 12C

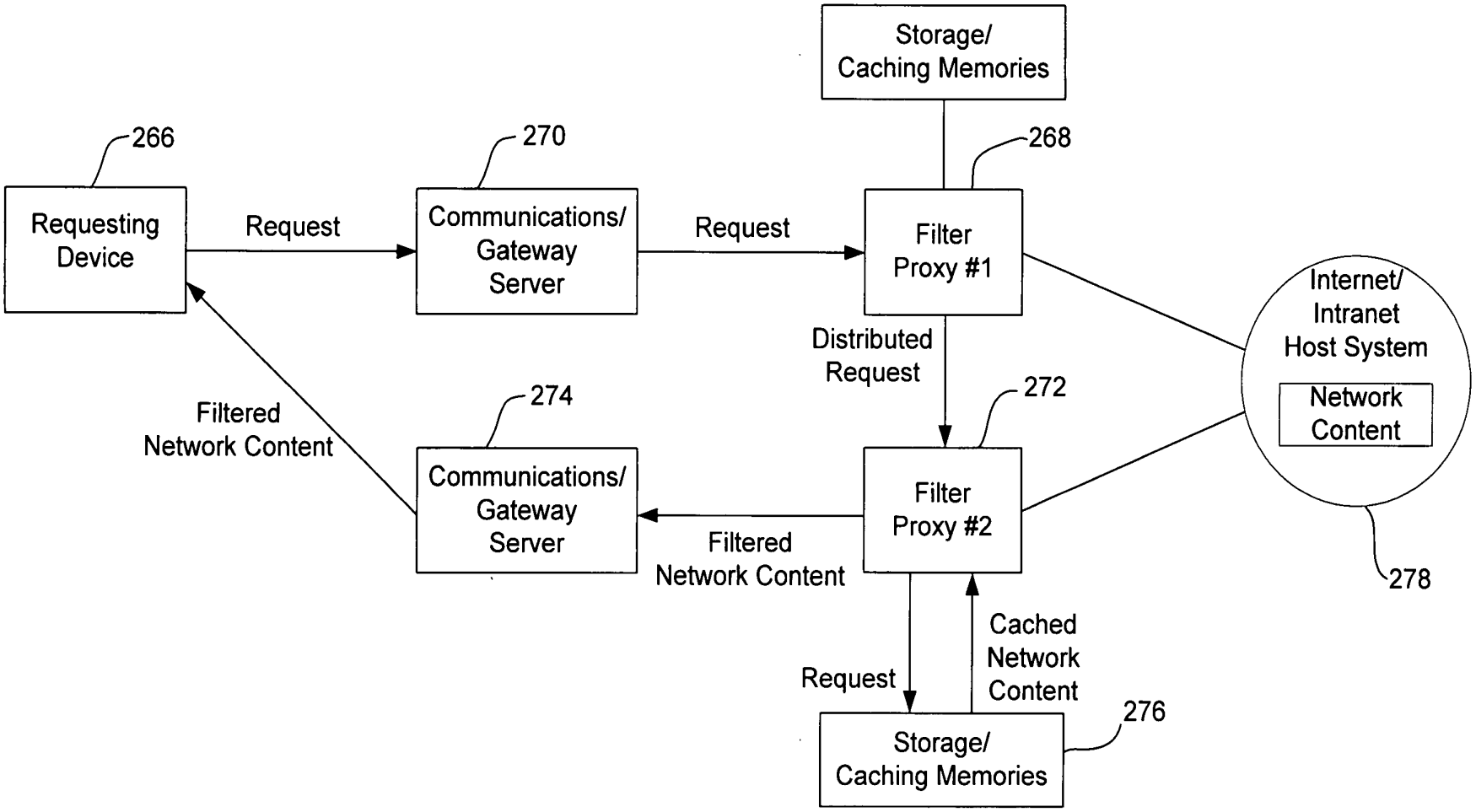
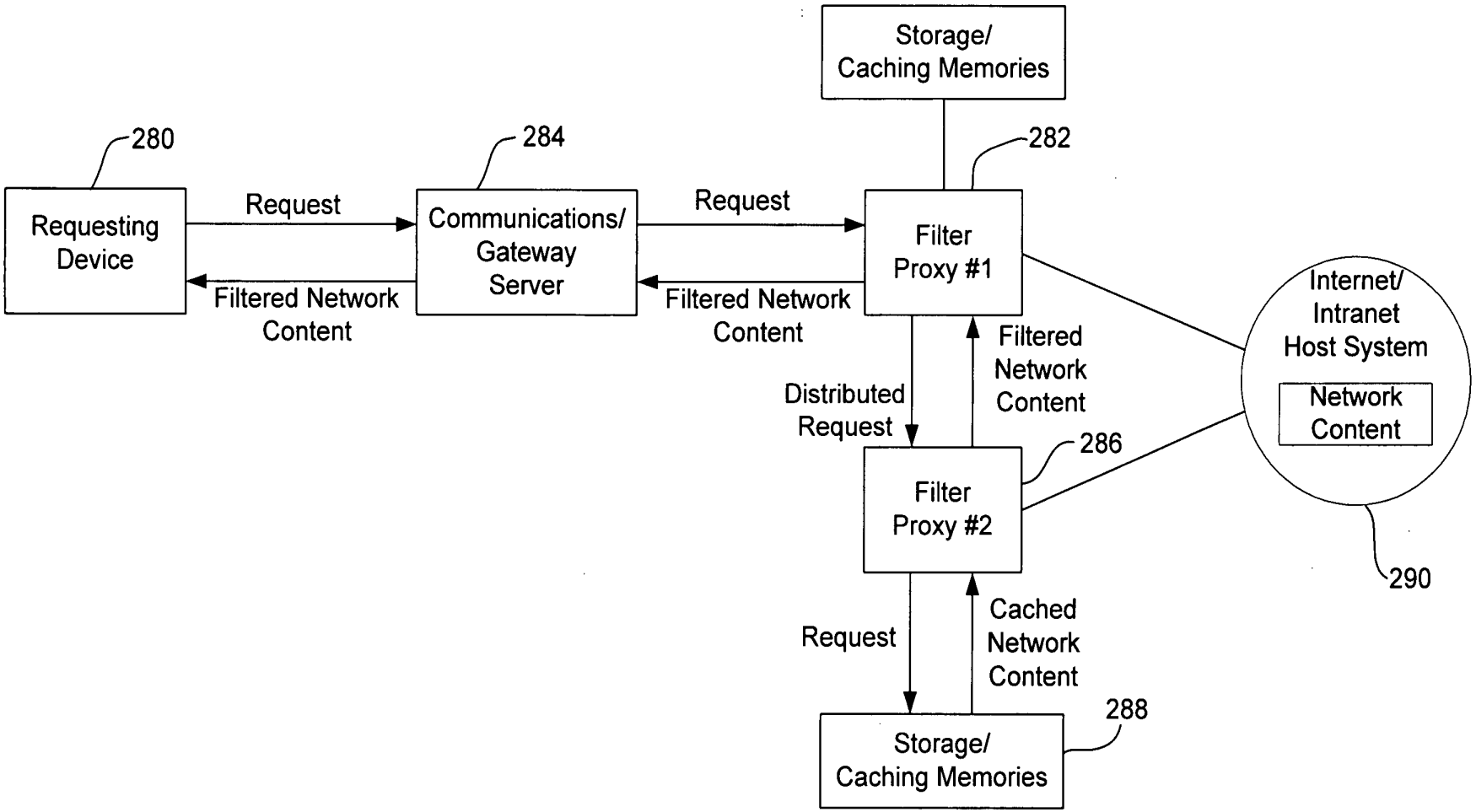


FIG. 12D


Storage/
Caching Memories
280
284
282
Requesting
Device
Request
Communications/
Gateway
Server
Request
Filter
Proxy #1
Filtered Network
Content
Filtered Network
Content
Internet/
Intranet
Host System
Network
Content
Distributed
Request
Filtered
Network
Content
286
Filter
Proxy #2
290
Request
Cached
Network
Content
288
Storage/
Caching Memories